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Title: The impact of the great East Japan earthquake against the occurrence of influenza A

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Body: Background: H1N1 09pdm emerged in April 2009 and became worldwide epidemic for two seasons, 2009-10 and 2010-11. We experienced the Great East Japan Earthquake on 11 March 2011: the second year of H1N1 09pdm epidemic. The patient profile of influenza A in the Shiogama-Tagajo area changed after the 3.11 earthquake. Objectives: We examined the impact of the earthquake against the occurrence of influenza A. Methods: We weighed patient distribution, age composition, and clinical presentation retrospectively during three periods: the 2009-10 influenza season (Period 1), the 2010-11 season before the 3.11 earthquake (Period 2A: from 15 December 2010 to 11 March 2011) and after the earthquake (Period 2B: from 12 March to 9 April 2011). Results: A total of 2337 patients with Influenza A were diagnosed by rapid diagnostic tests (Period 1: n=1574, Period 2A: n=671, Period 2B: n=92). During Period 1, the number of patients presented single peak in week 47 of 2009 and reached nadir in week 7 of 2010. During Period 2A, the number of patients peaked in week 3 of 2011 and declined steadily from week 4. Then the number of patients increased again for two weeks after the 3.11 earthquake. As for age composition, a ratio of adult patients in Period 2B was much higher than Period 1 or Period 2A (Period 2B: 62/92 (67.4%) vs. Period 1: 518/1574 (32.9%), P<0.01; Period 2B vs. Period 2A: 365/671 (54.4%), P<0.05). A ratio of the elderly patients aged 75 and over increased significantly in Period 2B (Period 2B: 20/92 (21.7%) vs. Period 1: 3/1574 (0.2%), p<0.01; Period 2B vs. Period 2A: 15/671 (2.2%), P<0.01). Conclusions: After the 3.11 earthquake, a ratio of the elderly increased 100-fold compared to the 2009-10 season.